

REMARKS

Claims 1-45 are all the claims pending in the application.

The Examiner has rejected claims 1-14, 19, 21-34, 40 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Beymer and Nagamine. Applicant traverses these rejections because the cited references fail to disclose or suggest all of the claim limitations. Specifically, the references fail to disclose or suggest at least the following limitations of the independent claims:

generating referential face image data based on the shooting conditions, the three-dimensional shape and an image of the surface thereof;

By way of example only, and not intended as limiting the scope of the claims, page 9, lines 23 – 26 of the Specification describe the generation of a referential image using the three-dimensional shape data 3 and the color image data 4 according to the shooting conditions.

Applicant first notes that the Examiner concedes that Beymer fails to disclose or suggest referential face image data being generated based on the three-dimensional shape of a person's face. Nagamine on the other hand discloses the collation of three-dimensional shapes, but does not use the surface image. As such, Nagamine compares shapes, but not face images.

Assuming *arguendo* that one of skill in the art were to combine Beymer with Nagamine, you might end up with a system that compare shapes and compares face images. However, there is nothing to suggest that referential image data that is compared would be generated by three-dimensional data and image data. Therefore, Applicant requests that the Examiner withdraw the prior art rejections.

In the Office Action, the Examiner asserts that Nagamine generates referential face data based on both the three dimensional shape of the face and an image of the surface of the face.

Applicant respectfully disagrees. The claimed image of the surface of the face is two-dimensional data, as opposed to the three dimensional shape of the face. Examples of the image data is color data or reflectance ratios. See for example, pages 8 and 12.

On the other hand, in Nagamine, the “image” refers to an image of an outline of a cross section. The “image” in Nagamine is, therefore, a completely different concept from that of the present invention. Nagamine receives 3D data, generates cross section images, looks for the difference between the cross section images considering the distance, and compares the data with the registered referential 3D data. Nagamine does not use a surface image (luminance or colors) on the face.

Regarding the rejection of claims 3, 4, 7, 8, 22 and 24, these claims should be allowable at least based on their dependence from their respective independent claims for the reasons described above. In addition, each of these claims requires that shooting conditions comprise a lighting direction. The Examiner asserts that Beymer discloses that the shooting conditions include lighting directions on page 757, section 2 and page 759, section 4.2. Applicant respectfully disagrees. Beymer does not take into account the lighting direction because it assumes lighting conditions are fixed (“For both the modeling and testing views, the lighting conditions are fixed and consist of a 60 watt lamp near the camera supplemented by background lighting from windows and overhead lights.”).

The claimed invention reproduces the lighting condition under which an image was shot and compares the image with the referential image. While the lighting condition varies, the lighting condition is reproduced based on given information. However, Beymer does not take into account the fact that lighting conditions are different between the times when a sample

image was shot and when a registered referential image was shot. Therefore, it is highly unlikely that images shot under different lighting conditions can be compared.

Beymer compares an image photographed under a specific lighting condition with a referential image. The lighting condition is fixed to the initial lighting condition under which a sample image was photographed. Consequently, Beymer cannot deal with the situation where lighting condition changes.

The Examiner has rejected claims 15-18, 20, 35-39 and 42-45 under 35 U.S.C. § 103(a) as being unpatentable over the combination of the Beymer and Nagamine articles, further in view of Wang (U.S. Patent No. 6,035,055).

Regarding the rejection of claims 15-18 and 20, these claims should be allowable at least based on their dependence from their respective independent claims for the reasons described above. In addition, each of these claims requires that shooting conditions comprise a lighting direction or directions. The Examiner asserts that Beymer discloses that the shooting conditions include lighting directions on page 757, section 2 and page 759, section 4.2. As mentioned above, Applicant respectfully disagrees. Beymer does not take into account the lighting direction because it assumes lighting conditions are fixed ("For both the modeling and testing views, the lighting conditions are fixed and consist of a 60 watt lamp near the camera supplemented by background lighting from windows and overhead lights.").

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.116
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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Carl J. Pellegrini
Registration No. 40,766

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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